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Onosmodium

KENNETH KENT MACKENZIE

The genus *Onosmodium*, founded in 1803 by Michaux, is a genus of *Boraginaceae* exclusively confined to North America and very largely to that portion of the United States east of the Rocky Mountains. The species are closely related and their proper identification has given much trouble to collectors, as evidenced by the large number of incorrectly labeled specimens found in herbaria. Many of the characters given in the standard manuals are not constant, and are misleading unless used with considerable discrimination ; this probably accounts for the great number of errors in herbarium determinations. The following notes are based on an examination of the specimens contained in the herbaria of the Missouri Botanical Garden, the New York Botanical Garden, and Columbia University, and in the author's private herbarium.

Properly limited, the genus is a very natural one and may be characterized as follows:

Erect, rough-hairy, branching, very leafy perennials, with alternate, entire, strongly veined leaves, and numerous flowers in terminal, leafy-bracted, scorpioid racemes. Flowers whitish, greenish-white or yellowish, from sessile to short-pedicelled, the pedicels usually somewhat elongating in fruit. Calyx shorter than the corolla, deeply 5-parted. Corolla tubular, slightly enlarged at the throat, 5-lobed, glabrous within, more or less hairy outside, the lobes erect, acute or acuminate, the sinuses somewhat inflexed. Stamens five, inserted on the corolla, included ; filaments minute ; anthers glabrous, narrowly arrow-shaped, acutish, the apex just about level with the sinuses of the corolla. Ovary four-parted. Style filiform, exserted, long persistent. Nutlets 4 mm. long or less, usually but one or two maturing, globular to ovoid, smooth or sometimes sparingly pitted, white to dingy whitish-brown, in some species noticeably constricted below, attached at base to the nearly flat receptacle, the scar of attachment about 2 mm. wide. (Greek, "like *Onosma*," an old-world genus of *Boraginaceae*.) Seven species, confined to the United States and Canada.

It will be noticed that under this characterization the plant called *Onosmodium Thurberi* by A. Gray (Syn. Fl. **2**^{1} : 205. 1878) does not fall within this genus. That species, however, is so self-evidently not congeneric with real *Onosmodium* that I feel no hesitation in removing it therefrom. It differs from *Onosmodium* in the greatly elongated corolla, exserted stamens, long filaments and versatile anthers, in usually ripening more nutlets, and in the persistence of the enlarged base of the style. For the present I refer it to *Macromeria* as **Macromeria Thurberi.** It seems certainly congeneric with *M. viridiflora* DC., *M. cinerascens* DC., and *M. discolor* Benth. Whether these species are congeneric with the original species of Don I cannot determine at present, the material I have seen being too scanty.

Onosmodium strigosum G. Don, Gen. Syst. **4** : 317 (1838), and *Onosmodium eriocaulon* A. DC. in DC. Prodr. **10** : 70 (1846), both from Northern Mexico, may be the same. The former as represented in herbaria is not an *Onosmodium*, the corolla and anthers both being very different. Of the latter I have seen no specimens.

The species of true *Onosmodium* which I have been able to recognize may be distinguished as follows :

- Bracts ovate, rounded at base ; fruiting pedicels usually exceeding the sepals ; corolla 5–7 mm. long. 1. *O. Helleri.*
- Bracts narrower, tapering at base ; fruiting pedicels rarely as long as the sepals ; corolla 9 mm. long or longer.
  - Corolla-lobes narrowly lanceolate-acuminate, two to three times as long as wide.
    - Pubescence appressed. 2. *O. virginianum.*
    - Pubescence spreading. *O. virginianum hirsutum.*
  - Corolla-lobes broadly triangular-acute, little longer than wide.
    - Stem not glabrous below the branches.
      - Nutlets noticeably pitted ; calyx-lobes 6 mm. long or less, noticeably soft-pubescent. 3. *O. molle.*
      - Nutlets little if at all pitted ; calyx-lobes hispid.
        - Corolla-lobes merely acute.
          - Nutlets strongly constricted at base.
            - Nutlets less than 3 mm. long. 4. *O. hispidissimum.*
            - Nutlets about 4 mm. long. *O. hispidissimum macrospermum.*
          - Nutlets not strongly constricted at base.
            - Nutlets 4 mm. long (rarely a little less). 5. *O. occidentale.*
            - Nutlets 3 mm. long (rarely 3.5 mm. long). *O. occidentale sylvestre.*

Corolla-lobes acuminate, often strongly so.
6. *O. bejariense.*
Stem glabrous below the branches. 7. *O. subsetosum.*

1. ONOSMODIUM HELLERI Small

Onosmodium Helleri Small, Fl. Southeast. U. S. 1000. 1903.

Perennial, 3–4 dm. high, short-pubescent all over with scattered hairs or densely soft-pubescent on the leaves beneath: leaves obtusish, short-petioled, 8–10 cm. long, 3–5 cm. wide, the lower broadly spatulate and tapering to the base, the middle broadly oblong-elliptical and rounded at base; bracts broadly ovate (at least the lower): fruiting pedicels 7–15 mm. long, usually exceeding the sepals: calyx-lobes 7–10 mm. long, linear, obtusish, ciliate: corolla not seen: nutlets obtusish, 3 mm. long, ovate-orbicular, apparently not constricted at base.

Type collected by A. A. Heller, April 30, 1894, along Bear Creek, Kerr County, Texas, *no. 1682*. A flowering specimen with corollas 5–7 mm. long and acute-triangular teeth pubescent outside, and generally resembling this species, is provisionally referred here, for the reason that the leaves are all merely oblanceolate or spatulate, but the specimen is young and the leaves are probably not fully developed.

This species is easily distinguished from all others by the characters given in the key and, in addition, by the short-petioled leaves. It seems to be confined to southwestern Texas, and has been rarely collected.

SPECIMENS EXAMINED. TEXAS: type specimen as cited above; *W. L. Bray 26*, 25 March 1898, Mt. Barker, Austin (the flowering specimen cited above); *Lindheimer*, 1850, "Texas"; *Reverchon 156*, June 1884, Bandera Pass.

2. ONOSMODIUM VIRGINIANUM (L.) DC.

Lithospermum virginianum L. Sp. Pl. 132. 1753.

Onosmodium hispidum Michx. Fl. Bor. Am. **1**: 133. 1803.

Onosmodium virginianum A. DC. Prodr. **10**: 70. 1846.

? *Onosmodium scabrum* R. & S. Syst. **4**: 57. 1819.

An erect perennial, 3–4.5 dm. high, or sometimes more, branching above with spreading branches; stems and branches usually shortly appressed-strigose: leaves from oblong-elliptical to narrowly spatulate, typically 5.4 cm. long and 1.4 cm. wide, usually rather strongly obtuse, but occasionally quite acute, 3–5 nerved, shortly appressed-strigose on both sides, the pubescence above sometimes quite papillose, but never as strongly developed as in the other species: bracts oblanceolate: fruiting pedicels 6 mm. long or less: calyx-lobes lanceolate-acuminate, 6–8 mm. long, hairy with spreading pubescence: corolla 9 mm. long (less than twice the length of the calyx), glabrous, light-yellowish, the lobes 3 mm. long, narrowly lanceolate-acuminate bearing apical tufts of hairs: nutlets 2.5 mm. long or less, obtusish or acutish, little if at all constricted at base.

All other species of *Onosmodium* have dirty-white corollas often distinctly tinged with green, but *O. virginianum* has distinctly yellow corollas, a character which added to the peculiar corolla-lobes readily distinguishes it from all others.

The standard manuals of the country give this species a range over the entire United States east of Kansas, but I have been able to find no specimens collected very far from the Atlantic or Gulf coasts, and am convinced that the specimens collected in the interior of the United States and referred to this species have been wrongly determined. This conclusion is borne out by the fact that in the collections examined by me are numerous specimens from the interior erroneously referred to this species, and it is on these specimens I believe that the extended range is based. As far as I can determine, the species, with its variety mentioned below, ranges along the Atlantic coast from Connecticut to Florida and thence west along the Gulf coast to Louisiana.

SPECIMENS EXAMINED. CONNECTICUT: *Bissell*, 6 August 1901, Oxford. NEW JERSEY: *Parker*, 2 June 1865, Burlington County; *Pollard*, 25 September 1897, Clementon. PENNSYLVANIA: *Britton*, 4 July 1899, Point Pleasant. VIRGINIA: *Addison Brown et al.*, 7 June 1890, Peaks of Otter; *Small & Heller*, 3 June 1891, Danville. NORTH CAROLINA: *Biltmore Herbarium 4253*, 17 June 1897, Hamlet, Richmond County. SOUTH CAROLINA: *Gibbes*, May 1834, Columbia; *Gibbes*, 1886, Andersonville. GEORGIA: *Beyrich 266; Cuthbert*, 3 May 1900, Augusta; *Small*, 9–12 July 1895, Albany, Dougherty County; *Small*, 20 July 1893 and 2 July 1895, McGuire's Mill, Gwinnet County. FLORIDA: *Curtiss 6611*, 9 May 1900, Seville, Volusia County; *Curtiss 2098*, April-May, Duval County; *Curtiss 4379*, 11 April 1893, Jacksonville; *Curtiss 4723*, 28 April 1894, Jacksonville; *Lighthipe 633*, April

1897; *Phillips*, Duval County; *Nash*, March 12–31 and May 4 1894, also 28 May 1895, Eustis, Lake County; *Hitchcock*, June and July 1898, Lake City; *Hitchcock*, June and July 1894, Eustis; *Rugel*, July 1843, Aspalaga; *Ohlinger*, 12 April 1894, Polk County; *Ferguson*, 8 August 1898, Tampa; *Huger*, April 1900, "Fla."; *Barrows* (1834), *Cozzens*, *Chapman*, and *Buckley*, "Fla." ALABAMA: *Earle & Baker*, 29 May 1897, Auburn, Lee County. LOUISIANA: *Hale*, Alexandria.

Onosmodium virginianum hirsutum var. nov.

Pubescence spreading; often strongly so.

This form differs from typical *O. virginianum* in the one character only, but on this account has sometimes been confused with other species. It seems to be confined to the southeastern United States; I have seen specimens from Alabama, Georgia, Florida and Mississippi.

SPECIMENS EXAMINED. GEORGIA: *Allmendinger*, Kennesaw Mt. ALABAMA: *Earle & Baker*, 29 May 1897, Auburn, Lee County (type specimen). FLORIDA: *Chapman; Curtiss 2098*, May, Jacksonville. MISSISSIPPI: *Hilgard*, May 1859; *Tracy 3113*, 3 May 1896, Columbus. SOUTHERN STATES: *Buckley*.

3. ONOSMODIUM MOLLE Michx.

Onosmodium molle Michx. Fl. Bor. Am. **1**: 133. 1803; not of late American authors.

An erect, much-branched perennial, about 6–7 dm. high, the stem below the branches hispid or in age appressed-strigose, the branches rather densely clothed with short, soft pubescence: larger leaves about 2 cm. broad and 5 cm. long, densely soft-pubescent all over with whitish hairs, the pubescence above and on the veins below spreading, the papillose character of some of the pubescence on the upper surface of the leaves hidden by the density of the pubescence; leaves lanceolate or narrowly ovate-lanceolate, acute, the lateral veins about three pairs: branchlets 3–12 cm. long, the bracts resembling reduced leaves: fruiting pedicels stout, less than 4 mm. long: calyx-lobes 6 mm. long, linear-oblong, obtuse or obtusish, barely twice the length of the nutlets, whitish-pubescent, not strongly nerved: corolla 8–12 mm. long, the triangular-acute lobes 2–3 mm. long, the pubescence on the exterior of the corolla confined almost entirely to the lobes: nutlets less than 3 mm. long, obtusish, usually strongly pitted for the genus, and often somewhat constricted at the base.

This species was founded by Michaux on a plant collected near Nashville, Tennessee, and the above description is largely based on fruiting specimens gathered near the same place by the collectors for the Biltmore Herbarium, and on flowering specimens collected by Dr. Gattinger. The western species to which this name has been applied by the later botanists differs from this one in the larger, less pitted, and never constricted nutlets; in the corolla, which is larger and much more pubescent externally; in the longer strongly-nerved sepals; and in being a much rougher plant.

Onosmodium hispidissimum, with its hispid stem and noticeably constricted nutlets, is easily distinguished.

As far as known *Onosmodium molle* is confined to the barrens of Tennessee and Kentucky, and is a comparatively rare plant in collections.

SPECIMENS EXAMINED. KENTUCKY: *C. W. Short*, 1840. TENNESSEE: *Gattinger*, May, Cedar Barrens of Middle Tennessee; *Biltmore Herbarium 5702*, 7 August 1895, Nashville.

4. **Onosmodium hispidissimum** nom. nov.

Onosmodium carolinianum of American authors; not *Onosmodium carolinianum* A. DC. Prodr. **10**: 70. 1846; nor *Onosmodium molle* Michx. Fl. Bor. Am. **1**: 13. 1803; nor *Lithospermum carolinianum* Lam. Tabl. Encyc. **1**: 367. 1791.

An erect perennial, often 9–12 dm. high, strongly branching above, the branches spreading or ascending; stem and branches thickly covered with spreading hispid whitish (or in the inflorescence yellowish-white) hairs 2–4 mm. long, the branches and often the stem also appressed-pubescent: leaves typically lanceolate, 8 cm. long and 14 mm. wide, sometimes 2.5 cm. wide and 1 dm. long, acute or acutish, tapering to the sessile base, prominently 5–7-nerved on both surfaces, strongly covered with whitish or sometimes yellowish-white spreading papillose hispid hairs above and on the veins beneath, and appressed-strigose between the veins beneath: bracts 8–16 mm. long, resembling the leaves in outline: fruiting pedicels from very short to 4 mm. long: calyx-lobes linear-oblong, obtuse or obtusish, 4–6 mm. long, strongly hispid with yellowish-white hairs: corolla (in earlier flowers, at least) 14–18 mm. long, twice the length of the flowering calyx, sparingly canescent outside below the lobes, but usually strongly canescent and with strongly developed tufts of hairs at the tip of the broadly triangular-acute lobes, which are about 3 mm. long:

nutlets 2–3 mm. long, very obtuse to acutish, strongly constricted at base, suborbicular to ovoid, dull, little if at all pitted.

Onosmodium carolinianum A. DC. is based on *Lithospermum carolinianum* Lam. and on *Onosmodium molle* Michx., the last named being cited as a synonym. That *O. molle* is distinct admits of little question. The short description of *Lithospermum carolinianum* given by Lamarck lays particular stress on its *obtuse* corolla-lobes, a character which shows it is not an *Onosmodium*. He also speaks of its ovate-lanceolate leaves. His description certainly does not answer to the plant to which the name *O. carolinianum* is applied by American authors. DeCandolle himself in taking up this latter name noticed the discrepancies between the descriptions of Lamarck and Michaux, and asked if there were not two species. He apparently knew neither of the species himself. In addition to this, Dr. Britton has kindly examined the specimen of *Lithospermum carolinianum* in Lamarck's herbarium in Paris. It is *Lithospermum Gmelini* (Michx.) A. S. Hitchcock, and was collected by Fraser in Carolina. Being the earliest name for this last species, it should be applied to it. It follows that neither the plant of Lamarck nor the plant of Michaux is the *Onosmodium carolinianum* of authors. Under the circumstances I have given the name of *Onosmodium hispidissimum* to the species now under discussion, it being the most hispid species of the genus.

SPECIMENS EXAMINED. NEW YORK: "*L. E. G.*", Onondaga Valley; *S. B. Buckley*, September 1831, Head of Seneca Lake; *Lucy 764*, Chenango County. VIRGINIA: *Small*, 20 July 1892, Marion, Smyth County; *A. Brown et al.*, 5 June 1890, Roanoke. WEST VIRGINIA: *Millspaugh*, 12 August 1891, Hinton. MARYLAND: *Shriver*, 7 August 1891, Cumberland. NEBRASKA: *Hayden*, 9 June 1853, near Council Bluffs. MISSOURI: *Engelmann*, July 1842, St. Louis; *Bush*, 3 July 1892, Sheffield; *Bush 361*, 15 June 1895, Independence; *Mackenzie 272*, 17 July 1898, Randolph, Clay County; *Mackenzie 1161*, 30 May 1895, Jackson County. KANSAS: *Mackenzie*, 31 May 1897, Wyandotte County. LOUISIANA: *Hale*, Alexandria. TEXAS: *Reverchon 649*, 1880, Dallas. INDIAN TERRITORY: *Palmer 206*.

Onosmodium hispidissimum macrospermum Mackenzie & Bush, var. nov.

Differs from the type principally in the nutlets being larger (4 mm. long) and shining-white: the bracts are also larger and more strongly two-ranked.

This variety, which is often noticeably distinct, is found in Missouri and Illinois in low rich woods or on low prairies, and never on dry hills with the type. The large shining nutlets contrasted with the small dull nutlets of the type are very striking. Type collected by myself near Atherton, Jackson County, Missouri, 7 September 1895.

SPECIMENS EXAMINED. MISSOURI: type specimens; *Bush 363*, 7 September 1895, Atherton (collected at the same time as the type specimens); *Bush 396*, 9 July 1894, Independence, and Jackson County, 2 August 1893. ILLINOIS: *Mead*, Augusta.

5. **Onosmodium occidentale** nom. nov.

Onosmodium carolinianum molle A. Gray, Syn. Fl. 2^1: 205. 1878, and later American authors; not *Onosmodium molle* Michx., *vide supra.*

Usually only 3–6 dm. tall, but occasionally 10–12 dm., branching above or often from near the base, the branches spreading or almost erect; plant clothed all over with a silvery-white or sometimes a slightly yellowish appressed or more or less spreading canescent pubescence (in northern and mountain plants sometimes quite green and noticeably spreading) usually not exceeding 2 mm. in length, the pubescence of the branches and leaves usually appressed: leaves typically about 5 cm. long and 1.5 cm. wide, acutish, prominently 5–7-nerved on both surfaces, the pubescence sometimes strongly spreading and papillose, but most typically soft, appressed and hardly papillose: bracts 6–24 mm. long, often 2-ranked, resembling the leaves in outline: fruiting pedicels from very short to 6 mm. long: calyx-lobes lanceolate, acute, acutish or obtusish, rarely linear-oblong, 6–12 mm. long, canescent or with somewhat spreading hairs: corolla 12–20 mm. long, canescent all over outside, the broadly triangular acute lobes (3–4 mm. long) usually with apical tuft of hairs not strongly noticeable: nutlets 3.5–4 mm. long, ovoid, acutish or acute, not constricted at base, dull in color, little if at all pitted.

This is the common *Onosmodium* of the western part of the country and the most common species in herbaria. It has heretofore been referred to *O. molle* Michx., a species which as already related I believe to be distinct. It ranges from Illinois to Athabasca, Alberta, Montana, New Mexico and Texas, and seems to be a fairly common plant in all this vast extent of country.

SPECIMENS EXAMINED. ILLINOIS: *Buckley*, July 1838; *Riehl 356*, June 1840. MINNESOTA: *Hasse*, 12 July 1882, Union County. IOWA: *Holway*, 12 July 1888, Decorah; *Hitchcock*, 1889, Ames; "*G. W. C.*", 18 September 1895, Des Moines; *Arthur*, 1875, "Iowa"; *Fitzpatrick*, 6 October 1894, Johnson County; *Mackenzie 261*, 12 July 1893, Muscatine County. MISSOURI: *Demetrio*, 30 May 1896, Saline County; *Bush*, 5 August 1893, Atchison County; *Bush 475*, 11 July 1894, and *462*, 1 June 1894, Watson; *Bush*, 6 July 1892, Jackson County; *Bush 532*, and *Mackenzie*, 10 June 1896, Waldo Park, Jackson County; *Mackenzie*, 22 August 1897, Red Bridge; *Mackenzie 322*, 14 August 1898, Lee's Summit; *Mackenzie*, 18 June 1899, Lee's Summit; 1837, St. Louis; *Bush 362*, 13 July 1894, Corning. KANSAS: *Norton 351*, 12 June 1895, Riley County; *Norton & Dorman*, 28 July 1893, Manhattan; 1891, Manhattan; *White*, May 1898, Cowley County; *Kellerman*, 1887, Olathe; *E. E. Gayle*, 18 June 1892, Ft. Riley; *A. B. Snow*, Kansas-Nebraska line; *Oyster*, 10 June 1883, Miami County. NEBRASKA: *Webber*, 4 July 1889, Broken Bow; *Rydberg*, 13 June 1891, Kearney County; *Hayden*, June 1853, Ft. Pierre; *H. Engelmann*, June 1858, Ft. Kearney; *Webber*, July 1889, Lincoln. SOUTH DAKOTA: *Wallace*, 9 July 1896, Corn Creek; *Williams & Corbett 219*, 16 August 1894, Big Stone; *L. W. Carter*, 8 August 1897, Devils' Tower; *Rydberg*, 16 June 1892, Hot Springs. NORTH DAKOTA: *M. A. Brannon 267*, 20 June 1896, Grand Forks; *Williams*, July 1889, Brookings (Dakota). MANITOBA: *E. S. Thompson*, 1898. ALBERTA: *Macoun 23965*, 24 August 1897, McLeod. ATHABASCA: *Macoun 11841*, 3 August 1895, Belly River. MONTANA: *Williams*, 5 June 1886, Big Falls of Missouri. WYOMING: *A. Nelson 206*, 20 July 1894, Hartville; *Pammel & Stanton 9*, 6 June 1897, Sheridan; *Tweedy 3576*, 15 June 1900, Sheridan, and *2596*, September 1899, Dayton. COLORADO: *Hulse*, 1870; *Britton*, 8 October 1882, Golden; *Osterhout 2461*, 25 June 1901, Boulder; *J. H. Cowen*, 10 July 1893, Ft. Collins; *Jones*, 12 June 1878, Platte River, Denver; *Engelmann*, 6 August 1874, Empire; *Brandegee*, 9 July 1873, Cañon City; *Cowen*, 25 June 1895. TEXAS: *Reverchon*, 1880, Dallas, and 3 March 1884, Industry; *Lindheimer; Hall*, 26 May 1872, Burton. NEW MEXICO: *Fendler*, 1847. MISC.: Frémont's Expedition to Rocky Mountains, 1842, *no. 814*, Walla Walla to Ft. Benton; 10 June 1881, Long's Expedition to Missouri River.

Onosmodium occidentale sylvestre var. nov.

An erect perennial, apparently about 10–12 dm. high, the stem below the branches densely pubescent with spreading whitish rather soft hairs 2–4 mm. long, the hairs on the branches more appressed, but many of them also spreading; branches spreading or ascending at maturity, 2–3 dm. long, usually forking; leaves lanceolate, entire or slightly undulate, the main stem-leaves 7–10 cm. long and 2.5 cm. wide or a little less, acute at apex, tapering to the sessile or very nearly sessile base, the 3–4 pairs of lateral veins prominent on both sides, the leaves papillose-hispid above, softly pubescent below, especially on the veins: bracts strongly 2-ranked, ovate-lanceolate or narrower, the lower 3 cm. long and 12 mm. wide, the terminal ones half that size: fruiting pedicels stout, 4–8 mm. long: calyx-lobes 10 mm. long, linear-oblong, acutish, 3–4 times the length of the nutlets, strongly rather short-pubescent: late corolla 9 mm. long, short-canescent outside, the tips somewhat hairy, the lobes deltoid in outline, 2 mm. long, acute but not acuminate: nutlets whitish, shining, 5 mm. long, ovate, acute, not constricted at base and little pitted.

This variety has the aspect and habit of *Onosmodium hispidissimum*, but differs in its non-constricted nutlets. From typical *O. occidentale* it differs in its larger size, more spreading and shaggy pubescence, smaller nutlets and less canescent corolla. From *O. bejariense* it differs in its merely acute corolla-lobes and in having leaves not strongly paler beneath than above, as well as in geographical range. It may well be specifically distinct from *Onosmodium occidentale*, but as that species is very variable, I have concluded to retain it as a variety merely. It seems to be confined to the region around St. Louis, being found in both Illinois and Missouri. The type was collected by *Dr. Engelmann* on July 21, 1861, in woods in the American bottom in Illinois opposite St. Louis, and is in the herbarium of the Missouri Botanical Garden.

SPECIMENS EXAMINED. ILLINOIS: type specimens; *A. S. Hitch-*

cock, 17 July 1890, Fish Lake. MISSOURI: *Eggert*, 12 July 1877, St. Louis.

6. ONOSMODIUM BEJARIENSE A. DC.

Onosmodium bejariense A. DC. in DC. Prodr. **10**: 70. 1846.

An erect perennial, about 6–9 dm. high, branching above, the branches ascending; stem, especially below the branches, strongly hispid pubescent with white or whitish hairs 4–6 mm. long; branches softly appressed-pubescent, also with numerous spreading whitish hairs 2–4 mm. long: leaves lanceolate or the lower oblanceolate-spatulate and long-tapering at the base, the well-developed stem-leaves 8–13 cm. long and 14 mm. wide, acute, sessile, strongly 5–7-nerved, the nerves prominent on both surfaces, softly appressed-pubescent below, or sometimes nearly glabrous between the veins, occasionally with spreading pubescence also on the veins, strigose-pubescent with papillose hairs above, noticeably paler beneath than above, at least in the case of the later leaves: pedicels 6 mm. long or less, the calyx-lobes linear-lanceolate, 8–10 mm. long, acute, appressed-pubescent and long-ciliate at base: well-developed corollas 14 mm. long, very finely canescent outside, often appearing nearly glabrous, and with a few spreading hairs on the lobes, the lobes 3–4 mm. long, triangular in outline, but tapering to a long-acuminate often abruptly bent apex: nutlets 3 mm. long, obtusish or acutish, from little to quite noticeably constricted at base.

A species as yet known only from southwestern Texas, from whence it was first described.

SPECIMENS EXAMINED. TEXAS: *Lindheimer*, 1848, New Braunfels; *Wilkinson 89*, 1897, and *125*, San Antonio; *Lindheimer*, 1844, Brazos; *Jermy*, Gillespie County; *Stanfield 98*, San Marcos; *Bush 1208*, 24 March 1902, San Antonio.

7. ONOSMODIUM SUBSETOSUM Mackenzie & Bush

Onosmodium subsetosum Mackenzie & Bush; Small, Fl. Southeast. U. S. 1001. 1903.

An erect perennial, about 6–10 dm. high, branching above, the branches ascending; stem very glabrous, with the exception of a very few short widely scattered appressed hairs; branches appressed-pubescent with very short white hairs, the pubescence not at all spreading: leaves lanceolate, 9 cm. long or less, 10–18 mm. wide, typically 2.5 cm. long and 14 mm. wide, strongly acute, tapering to the sessile or very nearly sessile base, prominently 5–7-nerved, appressed papillose-hispid above and whitish appressed-pubescent below: bracts 12–24 mm. long, resembling the leaves in outline: pedicels 3–6 mm. long (at least in fruit): calyx-lobes oblong, obtuse, 6 mm. long, hairy on both sides with short somewhat spreading white hairs, and more or less ciliate: corolla 10 mm. long, twice the length of the flowering calyx, soft-canescent above outside, its lobes triangular in outline, acute, barely 2 mm. long: nutlets ovoid, obtuse or acutish, 2–3 mm. long, little if at all constricted at base, but sometimes quite pitted.

This species differs from all others known to me in the glabrous stem (not branches), which strikingly differentiates it. It is confined to the Ozark Mountain region of Missouri and Arkansas, and is usually labeled "*Onosmodium virginianum*" in herbaria, but it has no close affinity to that species. The type was collected by B. F. Bush, *no. 135*, near Eagle Rock, Missouri, in barrens, July 11, 1897.

SPECIMENS EXAMINED. MISSOURI: type specimens; *Mackenzie*, 28 September 1896, Eagle Rock, Barry County; Greene County; *Dewart*, 3 June 1892, Potosi; *Eggert*, 5 June 1892, St. Francois County; *J. W. B.*, 19 May 1881, Willard; *Trelease*, 13 October 1897, St. Francois County; *Bush*, 20 July 1891, and 12 October 1893, Shannon County. ARKANSAS: *Glatfelter*, 17 July 1898, Eureka Springs.